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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/061,564	10/26/2001	Michael S. Foster	030048030US	2784
25096	7590	10/31/2006	EXAMINER	
PERKINS COIE LLP			TSEGAYE, SABA	
PATENT-SEA			ART UNIT	
P.O. BOX 1247			PAPER NUMBER	
SEATTLE, WA 98111-1247			2616	

DATE MAILED: 10/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/061,564	Applicant(s) FOSTER ET AL.	
	Examiner Saba Tsegaye	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-17, 19-29, 31-42 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-17, 19-29, 31-42 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/28/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is in response to the amendment filed 06/28/06. Claims 1-4, 6-17, 19-29, 31-42 and 44-46 are pending. Currently no claims are in condition for allowance.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Carvey and Miller et al. (US 6,247,058).

Regarding claim 1, Green discloses a method in a switch for multicasting data whose delivery is not guaranteed, the method comprising:

- receiving data to be multicasted (see fig. 3, column 5, lines 6-16);
- storing the received data in a buffer (column 5, lines 17-18);
- identifying destination ports thorough which the received data is to be transmitted (column 5, lines 35-43); and
- repeating determining the destination ports that are currently available and through which the data has not already been transmitted and transmitting the data through the determined

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destination ports until the data has been transmitted through all the destination ports (column 5, lines 48-61).

Green does not expressly disclose that the switch is InfiniBand compatible and transmitting data until the data has timed out at the switch.

Carvey teaches a multi-application switch router that is InfiniBand compatible (0057).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a multi-application switch, such as that suggested by Carvey, to the ATM switch of Green in order to provide a high-speed switching system.

Miller teaches a network device, such as a switch, router, switching hub, and the like, that time stamps arriving packets to facilitate a variety of functions, such as dropping stale packets, and processing broadcast packets (column 11, lines 6-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a clock, such as that suggested by Miller, to the switching system of Green in order to ensure the multicast packets are transmitted without undue delay.

Regarding claim 2, Green discloses input ports 340, a shared queue, and dedicated output queues. Green does not disclose an input port that has its own buffer. Carvey teaches an input port that has its own buffer (see fig. 12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use dedicated input buffer, such as suggested by Carvey, in the system of Green in order to provide deadlock-free network.

Regarding claim 7, Carvey teaches wherein the switch is an interconnect fabric module.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a fabric module, such as that suggested by Carvey, to the switch system of Green in order to handle error detection and recovery, and similar management functions.

Regarding claim 8, Green discloses the method wherein the identifying of destination ports includes using a virtual address and a label table that maps virtual address to destination ports (column 1, lines 40-56).

Regarding claim 9, Carvey discloses the method of claim 1 including when it is determined that a destination (destination, [0015], [0016] and [0017]) port is not available, determining whether an equivalent port is available.

4. Claims 10, 14, 19-24, 27, 32-36, 39 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. (US 5,687,324) in view of Carvey (US 2002/0049901 A1).

Claims 10, 23 and 35, Green discloses a routing device that receives a communication to be multicasted to destinations (see fig. 3, column 5, lines 6-16), that stores the communication in a buffer (column 5, lines 17-18), that identifies destination ports through which the received communication is to be transmitted to the destinations (column 5, lines 35-43), and that transmits the communication to the identified destination ports as the destination ports become available until the communication has been transmitted through all the destination ports (column 5, lines 56-61).

Green does not expressly disclose that the routing device is InfiniBand compatible.

Carvey teaches a multi-application switch router that is InfiniBand compatible (0057).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a multi-application switch, such as that suggested by Carvey, to the ATM switch of Green in order to provide a high-speed switching system.

Regarding claims 14 and 39, Green discloses input ports 340, a shared queue, and dedicated output queues. Green does not disclose an input port that has its own buffer. Carvey teaches an input port that has its own buffer (see fig. 12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use dedicated input buffer, such as suggested by Carvey, in the system of Green in order to provide deadlock-free network.

Regarding claim 19, Green discloses the routing device wherein the routing device is an ATM switch.

Regarding claims 20, 32 and 44, Carvey teaches an interconnect fabric module. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a fabric module, such as that suggested by Carvey, to the switch system of Green in order to handle error detection and recovery, and similar management functions.

Regarding claims 21, 33 and 45, Green discloses the routing device wherein the communication includes a virtual address and the routing device includes a label table that maps the virtual address to destination port (column 1, lines 40-56).

Regarding claims 22, 34 and 46, Carvey discloses the routing device wherein that identifies and equivalent destination (destination, [0015], [0016] and [0017]) port when the identified destination port is not available.

Regarding claims 24 and 36, Green discloses the method wherein the transmitting includes determining the destination ports that are currently available and through which the communication has not already been transmitted and transmitting the communication through the determined destination ports (column 5, lines 35-62).

Regarding claim 27, Green discloses the method of claim 23 including storing the communication in a buffer (see fig 3, 360).

5. Claims 3, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Carvey and Miller et al. as applied to claim 1 above, and further in view of Nelson et al. (US 6,138,185).

Green in view of Carvey and Miller discloses all the claim limitations as stated above, except for the communication to be multicasted without acknowledgement; and the communication indicates a Fibre channel class 3 communication.

Nelson teaches methods and structures for high-speed connection set up in a Fibre channel switch. Under the Fibre channel multicast/broadcast specification in that multicast/broadcast channel is of a type where packets may be dropped or discarded if a connection cannot be established (e.g. Class 3 service (column 9, lines 20-25)). As known Fibre

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channel class 3 service is called “unacknowledged service” and is often used for messages that do not need to be acknowledged.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a system the use Fibre channel service class 3, such as that suggested by Nelson, in the system of Green in view of Carvey and Miller in order to provide flexible packet switched topology.

6. Claims 15-17, 26, 28, 29, 31 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green in view of Carvey as applied to claims 10, 23 and 35 above, and further in view of Nelson et al. (US 6,138,185).

Green in view of Carvey discloses all the claim limitations as stated above, except for the communication to be multicasted without acknowledgement; the communication indicates a Fibre channel class 3 communication.

Nelson teaches methods and structures for high-speed connection set up in a Fibre channel switch. Under the Fibre channel multicast/broadcast specification in that multicast/broadcast channel is of a type where packets may be dropped or discarded if a connection cannot be established (e.g. Class 3 service (column 9, lines 20-25)). As known Fibre channel class 3 service is called “unacknowledged service” and is often used for messages that do not need to be acknowledged.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a system the use Fibre channel service class 3, such as that suggested by



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Nelson, in the system of Green in view of Carvey in order to provide flexible packet switched topology.

7. Claims 11-13, 25, 37 and 38 rejected under 35 U.S.C. 103(a) as being unpatentable over Green in view of Carvey as applied to claim 10, 23 and 35 above, and further in view of Miller et al. (US 6,247,058 B1).

Green in view of Carvey does not expressly disclose a criterion, which is a time out, and the criterion is the buffer is needed to store another communication.

Miller teaches a network device, such as a switch, router, switching hub, and the like, that time stamps arriving packets to facilitate a variety of functions, such as dropping stale packets, and processing broadcast packets (column 11, lines 6-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a clock, such as that suggested by Miller, to the switching system of Green in order to ensure the multicast packets are transmitted without undue delay

8. Claims 10, 11, 23, 24 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herring et al. (US 6,542,502 B1) in view of Carvey.

Claims 10, 23 and 35, Herring discloses a routing device that receives a communication to be multicasted to destinations (column 6, lines 35-389), that stores the communication in a buffer (column 6, lines 40-43), that identifies destination ports through which the received communication is to be transmitted to the destinations (column 6, lines 44-45), and that transmits the communication to the identified destination ports as the destination ports become available

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until the communication has been transmitted through all the destination ports (column 6, lines 46-54).

Herring does not expressly disclose that the routing device is InfiniBand compatible.

Carvey teaches a multi-application switch router that is InfiniBand compatible (0057).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a multi-application switch, such as that suggested by Carvey, to the switch of Herring in order to provide a high-speed switching system.

Regarding claim 11, Herring discloses the routing device wherein the transmitting of the communication to the identified destination ports as the destination ports become available continues until a criterion is satisfied (column 6, lines 48-54).

Regarding claims 24 and 36, Herring discloses the method wherein the transmitting includes determining the destination ports that are currently available and through which the communication has not already been transmitted and transmitting the communication through the determined destination ports (column 6, lines 46-542).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-4, 6-17, 19-29, 31-42 and 44-46 have been considered but are moot in view of the new ground(s) of rejection.

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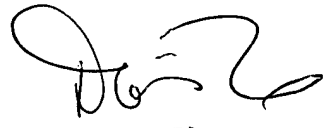
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571) 272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ST  
October 18, 2006

  
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SUPERVISORY PATENT EXAMINER  
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